IN THE CLAIMS:

Please **amend claims 3, 7, 9, 10, 12, 13, 16, 18, 20, and 29-34** as follows:

1. (*Original*) A filtering apparatus calculating a median of N pixel values arranged in a two-dimensional area of K*K (K is an odd number not smaller than 3) of a digitized image, comprising:

receiving means for receiving said N pixel values;

removing means for removing, from said received N pixel values, first to ((N-1)/2)th pixel values as sorted in accordance with a prescribed order; and

sorting means for outputting, among (N-(N-1)/2) pixel values remaining after removal of the pixel values by said removing means, first pixel value as sorted in accordance with said prescribed order as said median.

2. (*Original*) The filtering apparatus according to claim **1**, wherein said prescribed order is either ascending order or descending order.

3. (*Currently amended*) The filtering apparatus according to claim **1**, wherein

said receiving means ~~has~~ <u>includes</u>

dividing means for dividing said received N pixel values into K groups each consisting of K pixel values, and

group sorting means, for each of said K groups obtained by the division by said dividing means, for receiving and sorting the pixel values of the group in accordance with said prescribed order and outputting to said removing means~~÷~~, said removing means ~~has~~ including a plurality of cascade-connected pixel removing units for removing (N-1)/2 pixel values from said N pixel values;

each of said pixel removing units ~~has~~ includes

a determining unit determining, among first pixel values in accordance with said prescribed order of respective ones of said K groups applied, at least one first and following pixel values in accordance with the prescribed order, and

a shift storing unit receiving, temporarily storing and outputting said pixel values of said K groups; and

said shift storing unit removes, in said group including said pixel value determined by said determining unit, said determined pixel value from said pixel values of the stored group, and shifts order of the second and the following pixel values remaining after the removal in accordance with said prescribed order before outputting.

4. (*Original*) A filtering apparatus calculating a median of N pixel values arranged in a two-dimensional area of K*K (K is an odd number not smaller than 3) of a digitized image, comprising:

receiving means for receiving said N pixel values;

removing means for removing, from said received N pixel values, ((N-1)/2+2) to Nth pixel values as sorted in accordance with a prescribed order; and

sorting means for outputting, among (N-(N-1)/2) pixel values remaining after removal of the pixel values by said removing means, (N-(N-1)/2)th pixel value as sorted in accordance with said prescribed order as said median.

5.   (*Original*) The filtering apparatus according to claim 4, wherein said prescribed order is either ascending order or descending order.

6.   (*Currently amended*) The filtering apparatus according to claim **4**, wherein

said receiving means ~~has~~ <u>includes</u>

dividing means for dividing said received N pixel values into K groups each consisting of K pixel values, and

group sorting means, for each of said K groups obtained by the division by said dividing means, for receiving and sorting the pixel values of the group in accordance with said prescribed order and outputting to said removing means~~,~~<u>,</u> said removing means ~~has~~ <u>including</u> a plurality of cascade-connected pixel removing units for removing (N-1)/2 pixel values from said N pixel values;

each of said pixel removing units ~~has~~ <u>includes</u>

a determining unit determining, among first pixel values in accordance with said prescribed order of respective ones of said K groups applied, at least one first and following pixel values in accordance with the prescribed order, and

a shift storing unit receiving, temporarily storing and outputting said pixel values of said K groups; and

said shift storing unit removes, in said group including said pixel value determined by said determining unit, said determined pixel value from said pixel values of the stored group, and shifts order of the second and the following pixel values remaining after the removal in accordance with said prescribed order before outputting.

7.   (*Currently amended*) A filtering apparatus calculating, where a plurality of local areas including N pixel values of K*K (K is an odd number not smaller than 3) ~~has~~ being arranged overlapped with each other in a prescribed area of a digitized image, a median of N pixel values of each of the local areas, <u>said apparatus</u> comprising:

receiving means for receiving pixel values of said prescribed area and for outputting, for each of said plurality of local areas, N pixel values included in the local area; and

median extracting means corresponding to each of said plurality of local areas~~,~~<u>,</u>

wherein said median extracting means ~~has~~ <u>includes</u>

removing means, receiving from said receiving means N pixel values included in corresponding said local area, for removing, from the input pixel values, first to ((N-1)/2)th pixel values as sorted in accordance with a prescribed order, and

sorting means for outputting, among (N-(N-1)/2) pixel values remaining after removal of the pixel values by said removing means, first pixel value as sorted in accordance with said prescribed order, as said median.

8. (*Original*) The filtering apparatus according to claim **7**, wherein said prescribed order is either ascending order or descending order.

9. (*Currently amended*) The filtering apparatus according to claim **7**, wherein

said receiving means ~~has~~ <u>includes</u>

dividing means for dividing said received pixel values of said local areas into a plurality of groups each consisting of K pixel values, and

group sorting means, for each of said plurality of groups obtained by the division by said dividing means, for receiving and sorting the pixel values of the group in accordance with said prescribed order and outputting to said removing means corresponding

to said local area to which the group belongs~~;~~, said removing means ~~has~~ having a plurality of cascade-connected pixel removing units for removing (N-1)/2 pixel values from said N pixel values;

each of said pixel removing units ~~has~~ includes

a determining unit determining, among first pixel values in accordance with said prescribed order of respective ones of said K groups applied, at least one first and following pixel values in accordance with said prescribed order, and

a shift storing unit receiving, temporarily storing and outputting said pixel values of said K groups; and

said shift storing unit removes, in said group including said pixel value determined by said determining unit, said determined pixel value from said pixel values of the stored group, and shifts order of the second and the following pixel values remaining after the removal in accordance with said prescribed order before outputting.

10. (*Currently amended*) A filtering apparatus calculating, where a plurality of local areas including N pixel values of K*K (K is an odd number not smaller than 3) ~~are~~ is arranged overlapped with each other in a prescribed area of a digitized image, a median of N pixel values of each of the local areas, said apparatus comprising:

receiving means for receiving pixel values of said prescribed area and for outputting, for each of said plurality of local areas, N pixel values included in the local area; and

median extracting means corresponding to each of said plurality of local areas; wherein, said median extracting means has including

removing means, receiving from said receiving means N pixel values included in corresponding said local area, for removing, from the received pixel values, ((N-1)/2)+2)th to Nth pixel values as sorted in accordance with a prescribed order, and

sorting means outputting, among (N-(N-1)/2) pixel values remaining after removal of the pixel values by said removing means, (N-(N-1)/2)th pixel value as sorted in accordance with said prescribed order, as said median.

11. (*Original*) The filtering apparatus according to claim 10, wherein said prescribed order is either ascending order or descending order.

12. (*Currently amended*) The filtering apparatus according to claim 10, wherein

said receiving means has includes

dividing means for dividing said received pixel values of said local areas into a plurality of groups each consisting of K pixel values, and

group sorting means, for each of said plurality of groups

obtained by the division by said dividing means, for receiving and

sorting the pixel values of the group in accordance with said

prescribed order and outputting to said removing means corresponding

to said local area to which the group belongs;

said removing means has a plurality of cascade-connected pixel

removing units for removing (N-1)/2 pixel values from said N pixel

values;

each of said pixel removing units ~~has~~ includes

a determining unit determining, among first pixel values

in accordance with said prescribed order of respective ones of said

K groups applied, at least one first and following pixel values in

accordance with said prescribed order, and

a shift storing unit receiving, temporarily storing and

outputting said pixel values of said K groups; and

said shift storing unit removes, in said group including said

pixel value determined by said determining unit, said determined

pixel value from said pixel values of the stored group, and shifts

order of the second and the following pixel values remaining after

the removal in accordance with said prescribed order before

outputting.

13.   (*Currently amended*) A data driven type information

processing apparatus including operating means receiving a packet

having at least a destination field storing destination information, an instruction field storing instruction information and data field storing data, for executing an operation in accordance with a data flow program using the received packet, wherein

said operating means ~~has~~ <u>includes</u> filtering operation means for performing an operation in accordance with a median filtering instruction instructing calculation of a median of N pixel values arranged in a two-dimensional area of K*K (K is an odd number not smaller than 3) of a digitized image, means for other operations, and branching means for outputting, based on said instruction information of said received packet, said received packet either to said filtering operation means or said means for other operations;

said filtering operation means includes

removing means for removing, from said N pixel values in said data field of said received packet, first to ((N-1)/2)th pixel values as sorted in accordance with a prescribed order, and

sorting means for storing, among (N-(N-1)/2) pixel values remaining after removal of the pixel values by said removing means, first pixel value as sorted in accordance with said prescribed order, as said median in said data field of said packet and outputting said packet.

14. (*Original*) The data driven type information processing apparatus according to claim **13**, wherein said prescribed order is either ascending order or descending order.

15. (*Original*) The data driven type information processing apparatus according to claim **13**, further comprising:

program storing means for storing said data flow program including a plurality of pieces of said destination information and a plurality of pieces of said instruction information, receiving said packet, reading subsequent said destination information and subsequent said instruction information from said data flow program, storing the read information to said destination field and said instruction field of the received packet, respectively, and outputting the received packet;

pair data detecting means for receiving said packet output from said program storing means, storing contents necessary to execute said instruction information of said instruction field of the received packet and outputting the received packet to said operating means; and

input/output control means for receiving said packet output from said operating means, and outputting to the outside or to said program storing means.

16. (*Currently amended*) A data driven type information processing apparatus including operating means receiving a packet having at least a destination field storing destination information, an instruction field storing instruction information and data field storing data, for executing an operation in accordance with a data flow program using the received packet, wherein

said operating means ~~has~~ <u>includes</u> filtering operation means for performing an operation in accordance with a median filtering instruction instructing calculation of a median of N pixel values arranged in a two-dimensional area of K*K (K is an odd number not smaller than 3) of a digitized image, means for other operations, and branching means for outputting, based on said instruction information of said input packet, said received packet either to said filtering operation means or said means for other operations;

said filtering operation means includes

removing means for removing, from said N pixel values in said data field of said received packet, ((N-1)/2)+2) to Nth pixel values as sorted in accordance with a prescribed order, and

sorting means for storing, among (N-(N-1)/2) pixel values remaining after removal of the pixel values by said removing means, (N-(N-1)/2)th pixel value as sorted in accordance with said prescribed order, as said median in said data field of said packet and outputting said packet.

17. (*Original*) The data driven type information processing apparatus according to claim **16,** further comprising:

program storing means for storing said data flow program including a plurality of pieces of said destination information and a plurality of pieces of said instruction information, receiving said packet, reading subsequent said destination information and subsequent said instruction information from said data flow program, storing the read information to said destination field and said instruction field of the received packet, respectively, and outputting the received packet;

pair data detecting means for receiving said packet output from said program storing means, storing contents necessary to execute said instruction information of said instruction field of the received packet and outputting the received packet to said operating means; and

input/output control means for receiving said packet output from said operating means, and outputting to the outside or to said program storing means.

18. (*Currently amended*) A data driven type information processing apparatus including operating means receiving as a packet having at least a destination field storing destination information, an instruction field storing instruction information and data field

storing data, for executing an operation in accordance with a data

flow program using the received packet, wherein

said operating means ~~has~~ <u>includes</u> filtering operation means for

performing an operation in accordance with a median filtering

instruction instructing, where a plurality of areas including N

pixel values of K*K (K is an odd number not smaller than 3) are

arranged overlapped with each other in a digitized image,

calculation of a median of N pixel values of each of the areas,

means for other operations, and branching means for outputting,

based on said instruction information of said received packet, said

received packet either to said filtering operation means or said

means for other operations;

said filtering operation means includes

receiving means for inputting pixel values of said

plurality of local areas of said data field of said received packet,

and outputting, for each of said plurality of local areas, a packet

having N pixel values included in the local area stored in the data

field, and

median extracting means corresponding to each of said

plurality of local areas; and

said median extracting means includes ,

removing means, receiving from said ~~input~~ <u>receiving</u> means

a packet storing N pixel values included in corresponding said area,

for removing, from the input pixel values, first to ((N-1)/2)th pixel values as sorted in accordance with a prescribed order, and

sorting means for extracting, among (N-(N-1)/2) pixel values remaining after removal of the pixel values by said removing means in the data field of said packet, first pixel value as sorted in accordance with said prescribed order, as said median, storing the median in said data field of said packet and outputting the packet.

19. (*Original*) The data driven type information processing apparatus according to claim 18, further comprising:

program storing means for storing said data flow program including a plurality of pieces of said destination information and a plurality of pieces of said instruction information, receiving said packet, reading subsequent said destination information and subsequent said instruction information from said data flow program, storing the read information to said destination field and said instruction field of the received packet, respectively, and outputting the received packet;

pair data detecting means for receiving said packet output from said program storing means, storing contents necessary to execute said instruction information of said instruction field of the received packet and outputting the received packet to said operating means; and

input/output control means for receiving as an input said

packet output from said operating means, and outputting to the

outside or to said program storing means.

20. (*Currently amended*) A data driven type information

processing apparatus including operating means receiving a packet

having at least a destination field storing destination information,

an instruction field storing instruction information and data field

storing data, for executing an operation in accordance with a data

flow program using the received packet, wherein

said operating means ~~has~~ includes filtering operation means for

performing an operation in accordance with a median filtering

instruction instructing, where a plurality of local areas including

N pixel values of K*K (K is an odd number not smaller than 3) are

arranged overlapped with each other in a prescribed area of a

digitized image, calculation of a median of N pixel values of each

of the local areas, means for other operations, and branching means

for outputting, based on said instruction information of said

received packet, said received packet either to said filtering

operation means or said means for other operations;

said filtering operation means includes

receiving means for inputting pixel values of said

prescribed area of said data field of received said packet, and

outputting, for each of said plurality of local areas, a packet

having N pixel values included in the local area stored in the data field, and

median extracting means corresponding to each of said plurality of local areas; and

said median extracting means includes

removing means, receiving from said receiving means a packet storing N pixel values included in corresponding said local area, for removing, from the input pixel values, $((N-1)/2)+2)$th to Nth pixel values as sorted in accordance with a prescribed order, and

sorting means for extracting, among $(N-(N-1)/2)$ pixel values remaining after removal of the pixel values by said removing means in the data field of said packet, $(N-(N-1)/2)$th pixel value as sorted in accordance with said prescribed order, as said median, storing the median in said data field of said packet and outputting the packet.

21.   (*Original*) The data driven type information processing apparatus according to claim **20,** wherein said prescribed order is either ascending order or descending order.

22.   (*Original*) The data driven type information processing apparatus according to claim **20,** further comprising:

program storing means for storing said data flow program including a plurality of pieces of said destination information and a plurality of pieces of said instruction information, receiving said packet, reading subsequent said destination information and subsequent said instruction information from said data flow program, storing the read information to said destination field and said instruction field of the received packet, respectively, and outputting the received packet;

pair data detecting means for receiving said packet output from said program storing means, storing contents necessary to execute said instruction information of said instruction field of the received packet and outputting the received packet to said operating means; and

input/output control means for receiving said packet output from said operating means, and outputting to the outside or to said program storing means.

23. (*Original*) A filtering method for calculating a median of N pixel values arranged in a two-dimensional area of K*K (K is an odd number not smaller than 3) of a digitized image, comprising:

the receiving step of receiving said N pixel values;

the removing step of removing, from said N pixel values received in said receiving step, first to ((N-1)/2)th pixel values as sorted in accordance with a prescribed order; and

the sorting step of outputting, among the (N-(N-1)/2) pixel values remaining after the removal of the pixel values in said removing step, first pixel value as sorted in accordance with said prescribed order as said median.

24. (*Original*) A filtering method for calculating a median of N pixel values arranged in a two-dimensional area of K*K (K is an odd number not smaller than 3) of a digitized image, comprising:

the receiving step of receiving said N pixel values;

the removing step of removing, from said N pixel values received in said receiving step, ((N-1)/2)+2) to Nth pixel values as sorted in accordance with a prescribed order; and

the sorting step of outputting, among the (N-(N-1)/2) pixel values remaining after removal of the pixel values in said removing step, (N-(N-1)/2)th pixel value as sorted in accordance with said prescribed order as said median.

25. (*Original*) A program product to have a computer execute a filtering method, wherein

said filtering method is for calculating a median of N pixel values arranged in a two-dimensional area of K*K (K is an odd number not smaller than 3) of a digitized image, including:

the receiving step of receiving said N pixel values;

the removing step of removing, from said N pixel values received in said receiving step, first to ((N-1)/2)th pixel values as sorted in accordance with a prescribed order; and

the sorting step of outputting, among the (N-(N-1)/2) pixel values remaining after removal of the pixel values in said removing step, first pixel value as sorted in accordance with said prescribed order as said median.

26.   (*Original*) A program product to have a computer execute a filtering method, wherein said filtering method is for calculating a median of N pixel values arranged in a two-dimensional area of K*K (K is an odd number not smaller than 3) of a digitized image, including:

the receiving step of receiving said N pixel values;

the removing step of removing, from said N pixel values received in said receiving step, ((N-1)/2)+2) to Nth pixel values as sorted in accordance with a prescribed order; and

the sorting step of outputting, among the (N-(N-1)/2) pixel values remaining after removal of the pixel values in said removing step, (N-(N-1)/2)th pixel value as sorted in accordance with said prescribed order as said median.

27.   (*Original*) A machine readable recording medium recording a program to have a computer execute a filtering method, wherein

said filtering method is for calculating a median of N pixel values arranged in a two-dimensional area of K*K (K is an odd number not smaller than 3) of a digitized image, including:

the receiving step of receiving said N pixel values;

the removing step of removing, from said N pixel values received in said receiving step, first to ((N-1)/2)th pixel values as sorted in accordance with a prescribed order; and

the sorting step of outputting, among the (N-(N-1)/2) pixel values remaining after removal of the pixel values in said removing step, first pixel value as sorted in accordance with said prescribed order, as said median.

28. (*Original*) A machine readable recording medium recording a program to have a computer execute a filtering method, wherein

said filtering method is for calculating a median of N pixel values arranged in a two-dimensional area of K*K (K is an odd number not smaller than 3) of a digitized image, including:

the receiving step of receiving said N pixel values;

the removing step of removing, from said N pixel values received in said receiving step, ((N-1)/2)+2) to Nth pixel values as sorted in accordance with a prescribed order; and

the sorting step of outputting, among the (N-(N-1)/2) pixel values remaining after removal of the pixel values in said removing

step, (N-(N-1)/2)th pixel value as sorted in accordance with said prescribed order, as said median.

29. (*Currently amended*) A filtering method of calculating, where a plurality of areas including N pixel values of K*K (K is an odd number not smaller than 3) are arranged overlapped with each other in a digitized image, a median of N pixel values of each of the areas, comprising:

the receiving step of receiving the pixel values of said plurality of areas, and outputting, for each of said plurality of areas, N pixel values included in the area; and

the median extracting step of extracting the median corresponding to each of said plurality of areas~~;~~,

wherein said median extracting step includes

the removing step of removing, from said N pixel values included in corresponding said area and received in said receiving step, first to ((N-1)/2)th pixel values as sorted in accordance with a prescribed order; and

the sorting step of outputting, among the (N-(N-1)/2) pixel values remaining after the removal of the pixel values in said removing step, first pixel value as sorted in accordance with said prescribed order, as said median.

30. (*Currently amended*) A filtering method of calculating, where a plurality of local areas including N pixel values of K*K (K is an odd number not smaller than 3) are arranged overlapped with each other in a prescribed area of a digitized image, a median of N pixel values of each of the local areas, comprising:

the receiving step of receiving the pixel values of said prescribed area, and outputting, for each of said plurality of local areas, N pixel values included in the local area; and

the median extracting step of extracting the median corresponding to each of said plurality of local areas~~;~~,

wherein said median extracting step includes

the removing step of removing, from said N pixel values included in corresponding said local area and received in said receiving step, ((N-1)/2)+2)th to Nth pixel values as sorted in accordance with a prescribed order; and

the sorting step of outputting, among the (N-(N-1)/2) pixel values remaining after the removal of the pixel values in said removing step, (N-(N-1)/2)th pixel value as sorted in accordance with said prescribed order, as said median.

31. (*Currently amended*) A program product to have a computer execute a filtering method, wherein

said filtering method is for calculating, where a plurality of areas including N pixel values of K*K (K is an odd number not

smaller than 3) are arranged overlapped with each other in a digitized image, a median of N pixel values of each of the local areas, including:

the receiving step of receiving the pixel values of said plurality of areas, and outputting, for each of said plurality of areas, N pixel values included in the area; and

the median extracting step of extracting the median corresponding to each of said plurality of areas⸬,

wherein said median extracting step includes

the removing step of removing, from said N pixel values included in corresponding said area and received in said receiving step, first to ((N-1)/2)th pixel values as sorted in accordance with a prescribed order; and

the sorting step of outputting, among the (N-(N-1)/2) pixel values remaining after the removal of the pixel values in said removing step, first pixel value as sorted in accordance with said prescribed order, as said median.

32. (*Currently amended*) A program product to have a computer execute a filtering method, wherein

said filtering method is for calculating, where a plurality of local areas including N pixel values of K*K (K is an odd number not smaller than 3) are arranged overlapped with each other in a

prescribed area of a digitized image, a median of N pixel values of each of the local areas, including:

the receiving step of receiving as inputs the pixel values of said prescribed area, and outputting, for each of said plurality of local areas, N pixel values included in the local area; and

the median extracting step of extracting the median corresponding to each of said plurality of local areas~,~

wherein said median extracting step includes

the removing step of removing, from said N pixel values included in corresponding said local area and received in said receiving step, $((N-1)/2)+2)$th to Nth pixel values as sorted in accordance with a prescribed order; and

the sorting step of outputting, among the $(N-(N-1)/2)$ pixel values remaining after the removal of the pixel values in said removing step, $(N-(N-1)/2)$th pixel value as sorted in accordance with said prescribed order, as said median.

33.   (*Currently amended*) A machine readable recording medium recording a program to have a computer execute a filtering method, wherein

said filtering method is for calculating, where a plurality of areas including N pixel values of K*K (K is an odd number not smaller than 3) are arranged overlapped with each other in a

digitized image, a median of N pixel values of each of the areas, including:

the receiving step of receiving the pixel values of said plurality of areas, and outputting, for each of said plurality of areas, N pixel values included in the area; and

the median extracting step of extracting the median corresponding to each of said plurality of areas~~;~~,

wherein said median extracting step includes

the removing step of removing, from said N pixel values included in corresponding said area and received in said receiving step, first to ((N-1)/2)th pixel values as sorted in accordance with a prescribed order; and

the sorting step of outputting, among the (N-(N-1)/2) pixel values remaining after the removal of the pixel values in said removing step, first pixel value as sorted in accordance with said prescribed order, as said median.

34. (*Currently amended*) A machine readable recording medium recording a program to have a computer execute a filtering method, wherein

said filtering method is for calculating, where a plurality of local areas including N pixel values of K*K (K is an odd number not smaller than 3) are arranged overlapped with each other in a

prescribed area of a digitized image, a median of N pixel values of each of the local areas, including:

the receiving step of receiving the pixel values of said prescribed area, and outputting, for each of said plurality of local areas, N pixel values included in the local area; and

the median extracting step of extracting the median corresponding to each of said plurality of local areas;

wherein said median extracting step includes

the removing step of removing, from said N pixel values included in corresponding said local area and received in said receiving step, $((N-1)/2)+2)$th to Nth pixel values as sorted in accordance with a prescribed order; and

the sorting step of outputting, among the $(N-(N-1)/2)$ pixel values remaining after the removal of the pixel values in said removing step, $(N-(N-1)/2)$th pixel value as sorted in accordance with said prescribed order, as said median.